REMARKS

This is responsive to the Office Action dated February 26, 2003 in which the Examiner rejects claims 6-10 as being obvious over Blanchard (US Patent No. 4,345,265) in view of Baliga et al (US Patent No. 4,969,027) under 35USC §103(a). Claim 7 and 8 are rejected for being indefinite because of deficient language. The Examiner has not examined claims 11-20, on the ground that they are directed to a separate and distinct invention.

The applicants have amended claims 7-8 to perfect the claim language to overcome the language deficiencies in the two claims. In addition, the applicants have further amended independent claims 6 and 11 to define the present invention more precisely and clearly.

With the above amendments to claims 6 and 11, the applicants believe that the set of claims 11-20 and the set of claims 6-10 are now not distinct from each other. In particular, the applicants have deleted the non-essential limitation in claim 1 in the step for forming the first semiconductor region. A withdrawal of the restriction requirement in view of the amendments to the claims is thus now respectfully requested.

Furthermore, with the amendment to claim 6, which now more clearly defines the present invention, the applicants respectfully traverse the rejections of the Examiner under 35USC §103(a). In particular, neither of the cited Blanchard and Baliga et al patents discloses or teaches the features of the present invention that the third semiconductor region is formed to lie recessed in the other part, and outside the partial region (which has a smaller flux of dopant atoms), of the second semiconductor region, and that the second connection conductor is exclusively connected to second semiconductor region AND is adjacent to the partial region, as now clearly defined in amended claim 6. Detailed explanations follow as below.

Baliga et al (US Patent Patent No. 4,969,027), which is also cited as prior art in the

Specification of the present application, does not teach to form a third semiconductor region to lie in the other part, and outside the partial region having a smaller flux of dopant atoms, of the second semiconductor region. To the contrary, as shown throughout the drawings in Baliga, the second semiconductor (the base region) has a smaller thickness and thus a smaller flux of dopant atoms at the region where the third semiconductor region lies. In other words, in Baliga, the third semiconductor region lies inside, NOT outside, the region having a smaller flux of dopant atoms. Moreover, the second conductor is not exclusively connected to the second semiconductor region AND adjacent to the partial region of the second semiconductor region as called for by the present claims. More specifically, in figures 1B, 2C, 3A and 3C, the base electrode 19, 49, 84 is NOT exclusively connected to the base region, while

in figures 1A and 2A, the base electrode 19, 49 is though only connected to the base region, but it is NOT adjacent to a region having a smaller flux of dopant atoms.

In Blanchard (US Patent No. 4,345,265), the third semiconductor region (the source region 32, 34) does NOT lie outside the partial region having a smaller flux of dopant atoms. As is well-known in the art and explained in the present application, a smaller flux region may be realized by a smaller thickness and/or a lower doping concentration. As clearly illustrated in Blanchard, the source region either lies inside the region having a smaller flux (figures 1, 4 and 6), or lies inside both the regions with higher and lower flux (figure 5). Moreover, in Blanchard, the second conductor (either the gate electrode 24 or the metal contact 36) is NOT exclusively connected to the second semiconductor region (gate region), but also connected to the drain region 12 or the source region 32, 34.

Therefore, neither Blanchard nor Baliga teaches or implies that a third semiconductor is formed to lie outside the partial region (which has a smaller flux of dopant atoms), and that the second conductor is exclusively connected to the second semiconductor region AND is adjacent to the partial region. Thus, claim 6 is not obvious over Blanchard, Baliga or their combination, and is therefore

believed patentable. At least for the same reasons, claims 7-10 are also patentable as each of them includes all the limitations in claim 6.

For the same reasons as explained with respect to claim 6, claim 11, which is directed to a semiconductor device and have the similar distinguishing features as in claim 6, is believed also patentable. Its dependent claims 12-20 are therefore also believed patentable as each of them includes all the limitations in claim 11.

Applicants therefore respectfully request reconsideration and allowance in view of the above remarks and amendments. The Examiner is authorized to deduct additional fees believed due from our Deposit Account No. 11-0223.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal service as first class mail, in a postage prepaid envelope, addressed to Mail Stop Non-Fee Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on May 27, 2003.

Dated May 27, 2003 Signed Fern Pekarofski Print Name Fern Pekarofski

MARKED-UP VERSION OF THE AMENDED Claims 6-8 and 11

6. (Thrice Amended) A method of manufacturing a semiconductor device which comprises a first semiconductor region of a first conductivity type with a first connection conductor forming a collector region of a bipolar transistor, a second semiconductor region of a second conductivity type opposed to the first conductivity type with a second connection conductor[,] forming a base region of the transistor, and a third semiconductor region of the first conductivity type with a third connection conductor forming an emitter region of the transistor; said method comprising:

[providing a substrate] forming the first semiconductor region of the first conductivity type [, and forming thereon an epitaxial layer of the first conductivity type to form the first semiconductor region];

forming the second semiconductor region on the first semiconductor region, the second semiconductor region having a partial region with a smaller flux of dopant atoms than other part of the second semiconductor region;

forming the third semiconductor region which lies recessed in the other part, and outside the partial region, of the second semiconductor region; and

providing first, second and third connection conductors to the first, second and third regions with a connection conductor respectively, wherein the second conductor is exclusively connected to the second semiconductor region and is adjacent to the partial region of the second semiconductor region.

7. (Twice Amended) A method as claimed in claim 6, characterized in that the partial region of the second semiconductor region is formed below the second connection conductor and is given a smaller thickness and a lower doping concentration than those in the other region.

8. (Twice Amended) A method as claimed in claim 6, characterized in that the partial region of the second semiconductor region is given a smaller thickness than that in the other region.

11. (Amended) A semiconductor device with a semiconductor body comprising:

a first semiconductor region of a first conductivity type which lies in the semiconductor body and is provided with a first connection conductor, forming a collector region of a bipolar transistor;

a second semiconductor region of a second conductivity type opposed to the first conductivity type which is present above the first semiconductor region and adjoining a surface of the semiconductor body, and which is provided with second connection conductor, forming a base region of the transistor; and

a third semiconductor region of the first conductivity type which lies recessed in the second semiconductor region and is provided with a third connection conductor, forming an emitter region of the transistor;

characterized in that a partial region of the second semiconductor region, which lies outside the third semiconductor region [and adjacent the second connection conductor], has a smaller flux of dopant atoms than rest of the second semiconductor region, and said second connection conductor is exclusively connected to the second semiconductor region and is adjacent to said partial region.